

Physics and Pre-Engineering – Associate of Science

The Associate of Science with an emphasis in Physics and Pre-Engineering is a two-year degree for students who intend to transfer to a four-year university and major in engineering and physics.

Prerequisites

The student will need to demonstrate proficiencies in reading, English, and mathematics based on the COMPASS assessment test, ACT or SAT scores, or by taking the recommended/required classes. Some of the courses in this curriculum have specific prerequisites.

General Education (GE) Courses

In order to graduate with a college degree, all students are required to take certain general education courses. These include English composition, speech, wellness, science, art and humanities, mathematics, computer systems, and social and behavioral science.

Program Core Courses

MATH 150 Analytic Geometry and Calculus I, MATH 155 Analytic Geometry and Calculus II, MATH 253 Analytic Geometry and Calculus III, MATH 255 Differential Equations, PHYS 104/140 Engineering Physics I/lab, PHYS 105/145 Engineering Physics II/lab.

Program Elective Courses

Students interested in biochemistry should take BIOL 251/252 Biology I Lecture/Lab, BIOL 255/256 Biology II Lecture/Lab.

Program Outcomes

Students will develop an understanding of the following:

1. Show concept knowledge in measuring, mechanics of motion, the mechanical and thermal properties of matter, by application in problem solving.
2. Show concept knowledge in waves, simple harmonic motion, Electricity, magnetism, and optics, by application in problem solving.
3. Formulate problems in physics using the tools of mathematics.
4. Incorporation of graphing calculators in math and physics lab analysis.
5. Calculation in three-dimensional coordinate systems.
6. Apply the scientific method in lab work settings.
7. Analyze experimental error in lab work, and relate it to lab measurement.

Course Sequence

The listing that follows is a recommended sequence of courses for full-time students. The student should consult with an advisor for information specific to their academic situation.

Physics and Pre-Engineering – Associate of Science Recommended Sequence of Courses

(Fall) Semester I		Cr Hrs
COMM 207	Fundamentals of Speech	3
PSYC 100	First Year Seminar	1
ENGL 101	English Composition I	3
MATH 150	Analytic Geometry and Calculus I*	5
CSIS 100/130	Computer Concepts and Applications or Intro to Computer Information Systems	3
Total		15

(Spring) Semester II		
ENGL 289	English Composition II	3
MATH 155	Analytic Geometry and Calculus II	5
PSYC 155	General Psychology	3
	Arts/Humanities Elective	3
	Social/Behavioral Science Elective	3
Total		17

(Fall) Semester III		
PHYS 104	Engineering Physics I	4
PHYS 140	Engineering Physics I Lab	1
MATH 253	Analytic Geometry and Calculus III	3
HPER 150	Lifetime Fitness	1
	Arts/Humanities Elective	3
	Biological Science and Lab	5
Total		17

(Spring) Semester IV		
PHYS 105	Engineering Physics II	4
PHYS 145	Engineering Physics II Lab	1
MATH 255	Differential Equations	3
	Social/Behavioral Science Elective	3
	Arts/Humanities Elective	3
	Program Elective (s)	3-5
Total		17-18

Total Program Credits **66-68**

*Assuming the student has passed the equivalent of College Algebra and Trigonometry. If not, enroll first in MATH 125 College Algebra and Trigonometry (5 cr hrs).

For more information contact:

Program advisor
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